PATENT ABSTRACTS OF JAPAN

(11)Publication number :   2002-084447

(43)Date of publication of application : 22.03.2002

(51)Int.Cl.	H04N 5/232
	G03B 17/18
	G03B 19/02
	H04N 5/225
	// H04N101:00

(21)Application number : 2000-273518   (71)Applicant : FUJI PHOTO FILM CO LTD

(22)Date of filing :   08.09.2000   (72)Inventor :   SUGIMOTO MASAHIKO

(54) ELECTRONIC CAMERA

(57)Abstract:

PROBLEM TO BE SOLVED: To provide an electronic camera that has a menu function by which a user can easily select functions and revise various settings in matching with the way the user uses the electronic camera.

SOLUTION: When a menu/execute button is depressed in a manual photographing mode, a photographing setting menu is selected. The photographing setting menu has menu items 82 such as white balance, ISO sensitivity, lightness (exposure correction) and image quality. The menu items 82 are automatically arranged in the order of higher frequency of use or displayed according to the display sequence optionally decided by the user. Furthermore, the display sequence of the menu items 82 is not revised and a start position of a cursor 86 is brought onto an item with the highest frequency of use in an initial menu at transition of the menu. Or the menu indication may be fixed in a default state at product shipment.
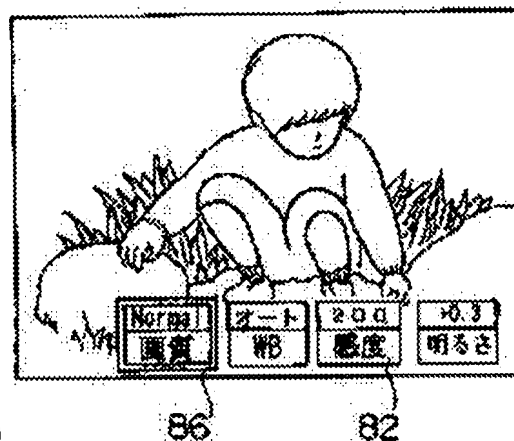
LEGAL STATUS

[Date of request for examination]   28.09.2005

* NOTICES *

1.This document has been translated by computer. So the translation may not reflect the original precisely.
2.**** shows the word which can not be translated.
3.In the drawings, any words are not translated.

DETAILED DESCRIPTION

[Detailed Description of the Invention]
[0001]
[Field of the Invention] This invention relates to the menu display technique of the camera which adopted GUI (graphical user interface) which starts an electronic camera, especially inputs various setting matters, such as photography conditions, from a menu screen.
[0002]
[Description of the Prior Art] The electronic camera which has a menu facility is indicated by JP,11-261852,A, and exposure amendment, a type of optical measurement, the existence of continuous shooting, a setup of a white balance, display language, etc. can be specified as it in a photography menu. A photography menu is displayed on the liquid crystal display monitor built in the electronic camera, and a photography person operates a predetermined control unit and performs selection of migration **** and an item for cursor to a desired menu item.
[0003]
[Problem(s) to be Solved by the Invention] However, the conventional menu screen was what a menu item is displayed as in order of a predetermined array (fixed). In order that a camera may carry out usage depending on which each users differ, respectively, the function frequently used by people, a setting matter, etc. are different. With the conventional camera, since the display gestalt of a menu screen was uniform, it was not able to be said to be what everyone tends to use about operability, such as a selection of function and setting modification.
[0004] This invention was made in view of such a situation, and aims at offering the electronic camera which can realize the menu facility which a selection of function is performed and can make various kinds of setting change easily according to how employing a user.
[0005]
[Means for Solving the Problem] In order to attain said purpose, the electronic camera concerning this invention An image pick-up means to change the optical image of a photographic subject into an electrical signal, and a record means to record the image photoed with said image pick-up means on a record medium, A display means to display two or more menu items related with a setup of photography conditions, An order decision means of a display to determine the order of a display of said menu item, and a menu display modification means to arrange a menu item according to the order of a display determined with said order decision means of a display, and to change a menu display, It is characterized by having an actuation means to input the directions which choose a desired menu item out of said two or more menu items.
[0006] Since modification of the array sequence of the menu item which the screen of GUI is shown was enabled according to this invention, the operating environment which each user tends to use is realizable. If this invention is caused like 1 voice, it has a means by which a user can set the order of a display of a menu item as arbitration. Moreover, it has a frequency count means to calculate the frequency where the contents of a setting were changed about each menu item, and there is also a mode by which the order of a display of said menu item is determined as order with the high frequency

computed with said frequency count means.

[0007] The arbitration mode in which a user sets the order of a display of a menu item as arbitration, and the order mode of frequency which makes an automatic change at the order of frequency may be constituted selectable. Furthermore, the predetermined order of a display, such as an initial state at the time of product shipment, is memorized, and it is also possible to switch to the menu display by the predetermined order concerned of a display according to user actuation.

[0008] An image pick-up means by which the electronic camera concerning other modes of this invention changes the optical image of a photographic subject into an electrical signal, A record means to record the image photoed with said image pick-up means on a record medium, and a display means to display two or more menu items related with a setup of photography conditions, An actuation means to be an actuation means to input the directions which choose a desired menu item out of said two or more menu items, and to input the directions to which the cursor which specifies the target menu item is moved, A frequency count means to calculate the frequency where the contents of a setting were changed about each menu item, The start positioning means which is based on the count result of said frequency count means, and determines a menu item with the highest frequency as a start location of said cursor at the time of menu screen shift, It is characterized by having a start repositioning means to change the start location of said cursor of a menu display according to the decision of said start positioning means.

[0009] Even if it does not change the order of a display of a menu item, operability improves by setting the start location of cursor (selection mark) automatically to a menu item with the highest frequency.

[0010]

[Embodiment of the Invention] The gestalt of desirable operation of the electronic camera built over this invention according to an accompanying drawing below is explained.

[0011] Drawing 1 is the front view of the digital camera concerning the operation gestalt of this invention. As shown in this drawing, a taking lens 12, the finder aperture 14, a stroboscope 16, the stroboscope modulated light sensor 18, and the self-timer lamp 20 are formed in a digital camera (it is hereafter written as a camera.) 10, and behind the taking lens 12, the CCD series (it indicates as un-[in drawing 1] illustrating and a sign 56 in drawing 4) as an image sensor is arranged. A sign 21 is the grip section. Although not illustrated, the card slot, the digital-input/output terminal, the video outlet terminal, and the terminal for DC power supplies of a memory card (it indicates as a sign 76 in drawing 4) are prepared in the camera side face of the grip section 21 and the opposite side.

[0012] As shown in drawing 2 , the shutter release 22 and the electric power switch 24 are formed in the top face of a camera 10. A shutter release 22 is constituted by the two-step type, automatic focus doubling (AF) and automatic exposure control (AE) operate in the state of "half-push" which pushes a shutter release 22 lightly and stops it, AF and AE are locked, and photography is performed in the state of "all push" further pushed in from "half-push." A shutter release 22 is made to serve a double purpose as an image transcription carbon button which directs the image transcription initiation / halt at the time of animation record.

[0013] Drawing 3 is the rear view of a camera 10. The liquid crystal panel 26 for character representation, the liquid crystal display monitor 28, the mode dial 30, the cross-joint carbon button 32, and the finder 34 grade are prepared in the tooth back of a camera 10. The liquid crystal panel 26 for character representation is a display which displays the information about a condition, photography mode, etc. of a camera with an alphabetic character, an easy graphic form, etc., for example, information, such as a dc-battery check display, a display of the number of coma which can be photoed, or a playback coma number, existence of stroboscope luminescence, a macro mode display, a record image quality (quality) display, and a pixel numeral, is displayed.

[0014] The macro carbon button 38 for performing setup/discharge in the stroboscope carbon button 36 for switching the mode of speed light photography and short-distance (macro) photography mode is arranged in the side of the liquid crystal panel 26 for character representation.

[0015] A liquid crystal display monitor 28 is a display means to display the playback image read from the preview drawing and memory card 76 of the photoed image while being able to use it as an

electronic finder for a field angle check at the time of photography. Moreover, selection of the menu which used the cross-joint carbon button 32, a setup of the various items in each menu, etc. are performed using the display screen of a liquid crystal display monitor 28.

[0016] The mode dial 30 is a means to change the function of a camera. The modes, such as setup mode, self-timer photography mode, manual photography mode, usual photography mode, a playback mode, and PC mode, can be chosen by carrying out rotation actuation of the mode dial 30, and doubling with an index 39 the mark in each mode drawn on the dial.

[0017] a cross joint carbon button 32 be the thing which enabled it to input the directions of four directions (a top , the bottom , right , left) which correspond by press one edge of vertical and horizontal , and it be use as a means direct scale factor adjustment of an electronic zoom , the migration directions based on zoom , and delivery/return of a playback coma while use as a manual operation button which direct selection of the various setting items in a menu screen , and modification of the contents of a setting .

[0018] A sign 40 is a shift carbon button and a sign 42 is the display carbon button 42. The shift carbon button 40 is a push switch for extending the function of the key switch of cross-joint carbon button 32 and others. The display carbon button 42 is an actuation means for carrying out ON/OFF actuation of the liquid crystal display monitor 28, or switching a display / un-displaying. [of the coma number under playback etc.]

[0019] The index 39 of the mode dial 30 is inserted and the menu / activation carbon button 46 is arranged in the bottom by cancellation / returning carbon button 44, and the bottom. Cancellation / returning carbon button 44 is used when returning to the actuation condition in front of [of the item chosen from the menu] cancellation (cancellation) or one. When making a menu / activation carbon button 46 change from the usual screen in each mode to a menu screen, it is used at the time of decision of the contents of selection, and activation (check) directions of processing etc.

[0020] Moreover, it has structure which the cell covering 48 is formed in a camera base free [closing motion], and inserts in longitude the cell which is not illustrated along with the grip section 21.

[0021] Drawing 4 is the block diagram showing the internal configuration of a camera 10. A taking lens 12 may consist of one sheet or two or more lenses, a single focal lens is sufficient as it, and the focal distance adjustable thing of a zoom lens etc. is sufficient as it. After the quantity of light is adjusted according to diaphragm 54, incidence of the light which passed the taking lens 12 is carried out to CCD series (henceforth CCD) 56. In the light-receiving side of CCD56, photosensor is arranged superficially, and the photographic subject image by which image formation was carried out to the light-receiving side of CCD56 is changed into the signal charge of the amount according to the amount of incident light by each photosensor. CCD56 has the so-called electronic shutter function which controls the charge storage time (shutter speed) of each photosensor by timing of a shutter gate pulse.

[0022] In this way, the accumulated signal charge is read one by one as a voltage signal (picture signal) according to a signal charge based on the pulse given from the CCD driver which is not illustrated. The picture signal outputted from CCD56 is sent to the analog processing section 58. In this analog processing section 58, color separation processing of the analog processing section 58 is carried out in a correlation duplex sampling (CDS) processing list at each chrominance signal of R, G, and B including digital disposal circuits, such as a sampling hold circuit, a color separation circuit, and a gain equalization circuit, and adjustment (PURIHOWAITO balance processing) of the signal level of each chrominance signal is performed.

[0023] After the signal outputted from the analog processing section 58 is changed into a digital signal by A/D converter 60, it is added to the digital processing section 62. The digital processing section 62 is an image-processing means including brightness and a color-difference-signal generation circuit, a gamma correction circuit, a sharpness amendment circuit, a contrast amendment circuit, a white balance amendment circuit, etc., and processes a picture signal according to the command from CPU64.

[0024] The image data inputted into the digital processing section 62 is stored in memory 66 after predetermined processing of a gamma correction etc. is performed, while being changed into the luminance signal (Y signal) and the color-difference signal (Cr and Cb signal). When carrying out the ·

display output of the photography image, image data is read from memory 66 and it is transmitted to the memory 68 for a display through the digital processing section 62. The data memorized by the memory 68 for a display are changed into the video signal according to the predetermined format of NTSC system and others, and are outputted to a liquid crystal display monitor (LCD) 28.

[0025] The image inputted through CCD56 is displayed on real time by the liquid crystal display monitor 28 by rewriting the image data in memory 66 periodically by the picture signal outputted from CCD56, and supplying the video signal generated from the image data to a liquid crystal display monitor 28. A photography person can check a photography field angle by the image projected on a liquid crystal display monitor 28, or the optical finder 34.

[0026] If photography mode is set up and a shutter release 22 is pushed by the mode dial 30 included in a control unit 70, a photography initiation directions (release ON) signal will be emitted. CPU64 detects a release-on signal and performs image pick-up actuation for record. That is, CPU64 performs exposure control by controlling the electronic shutter of the diameter of opening of diaphragm 54, or CCD56 while it controls the lens driving gear containing the motor which is not illustrated and performs focal actuation.

[0027] Incorporation of the image data for record is started following depression actuation of a shutter release 22. When the mode which carries out compression record of the image data is chosen, CPU64 sends a command to the compression elongation circuit 72. Thereby, the compression elongation circuit 72 compresses the image data on memory 66 according to the predetermined format of JPEG and others.

[0028] The compressed image data is recorded on a memory card 76 through the card interface 74. When the mode (incompressible mode) which records incompressible image data is chosen, the compression processing by the compression elongation circuit 72 is omitted, and while it has been incompressible, image data is recorded on a memory card 76.

[0029] With the camera 10 of this example, SmartMedia (Solid-State Floppy Disk Card) is applied as a means to save image data. The gestalt of an archive medium is not limited to this, but a PC card, CompactFlash (trademark), a magnetic disk, an optical disk, a magneto-optic disk, a memory stick, etc. are sufficient as it, and it can use the various media which can be written according to electronic, magnetic, optical, or the method by such combination. The signal-processing means and interface according to the medium used are applied. Different species and an archive medium of the same kind may not be asked, but you may make it the configuration which can equip with two or more media. Moreover, a means to save an image file may be the record medium (internal memory) built not only in removable media removable on the body of a camera but in the camera 10.

[0030] If a playback mode is set up by the mode dial 30, an image file will be read from a memory card 76. If needed, elongation processing is carried out by the compression elongation circuit 72, and the read image data is outputted to a liquid crystal display monitor 28 through display memory 68.

[0031] CPU -- 64 -- a camera -- each -- a circuit -- generalization -- control -- carrying out -- a control section -- it is -- a control unit -- 70 -- from -- accepting -- an input signal -- being based -- corresponding -- a circuit -- actuation -- controlling -- while -- a liquid crystal display monitor -- 28 -- it can set -- a display -- control -- a stroboscope -- luminescence -- control -- an automatic focus -- (-- AF --) -- control -- and -- a automatic exposure -- (-- AE --) -- control -- etc. -- carrying out .

[0032] A control unit 70 is the block including the directions input means of a menu / electric power switch 24, shutter release 22, mode dial 30, cross-joint carbon button 32, and activation carbon button 46, and others. A control unit 70 has not only the gestalt of a push button type switch, a dial, a lever type switch, a slide type knob, etc. but the mode which chooses a desired item from the setting menu displayed on a liquid crystal display monitor 28, or selections by cursor, the pointer, a touch panel, etc.

[0033] The digital camera 10 of this example has the display setting processing section 80 which processes a setup of the display gestalt in a menu screen, and a change of the contents of a display of a menu display is made by the display setting processing section 80. Although later mentioned in detail about a menu display, while CPU64 controls the display setting processing section 80 according to a program and updates a menu display automatically, it can change a menu display according to the

directions from a control unit 70.

[0034] An example of a menu screen is shown in drawing 5 . If a menu / activation carbon button 46 is pushed on a manual photography screen, it will shift to the screen of a photography setting menu like drawing 5 . A photography setting menu has two or more items, such as a white balance, ISO speed, brightness (exposure amendment), image quality, a stroboscope, a manual focus, a photometry pattern, sharpness, a preview display, a self-timer, and continuous shooting, and an array indication of the menu item 82 is given under the screen of a liquid crystal display monitor 28. When all the menu items 82 cannot be displayed on one screen, the page division of the menu screen is carried out. In this example, four menu items 82 can be displayed on one screen, and an object item can be switched by actuation of the left key of the cross-joint carbon button 32, or a right key.

[0035] If the menu item 82 with a user is chosen, the menu balun (sub menu frame) 84 of a sub menu will be shown a pop-up table about the item, and the selection candidate of the concrete contents of a setting in the item concerned will be shown in the menu balun 84. A user chooses the contents of a setting by the upper key of the cross-joint carbon button 32, or the bottom key, and decides the contents of a setting by the depression of a menu / activation carbon button 46.

[0036] For example, in the item of a "white balance", it can choose from selection candidates, such as auto (it regulates automatically), the fine weather outdoors, the shade, a daylight color fluorescent lamp, and an incandescent lamp, according to the environment and illumination light at the time of photography. In the item of "ISO speed", one can be chosen from from among 200,400,800. According to the item of "brightness", brightness can be set up at about 0.3 EV step in the range of -1.5-+1.5EV. In the item of "image quality", compressibility can be chosen and three kinds of high-definition "Fine" and "Basic" in which "Normal" of level and the number of sheets which can be photoed usually increase can be set up.

[0037] According to the item of a "stroboscope", the brightness of a stroboscope can be set up at 0.3EV step in the range of -0.6-+0.6EV. In the item of a "manual focus", it can choose any of the manual focuses ON and OFF they are. In the item of a "photometry", which photometry pattern can be chosen among the average photometry which takes the full-screen average by making the whole screen applicable to a photometry, the spot photometry which makes only the central part of a screen applicable to a photometry, or the multi-photometry which divides a screen into two or more area, and measures the strength of the light. In "sharpness", the degree of profile emphasis can be set up on the basis of "0" in the suitable range for the direction (software) of -, and the direction (hard) of +. In the item of a "preview display", it can choose any of the previews ON and OFF of whether to display a preview they are. In addition, the current contents of a setting are displayed on the upper part of each menu item.

[0038] In drawing 5 , although four items of a "white balance", "ISO speed", "brightness", and "image quality" are shown, the display order of a menu item 82 is automatically changed based on assignment of a user. For example, it is possible to calculate the frequency which changed the setting matter, to arrange a menu item in order with high frequency automatically, and to display it on it from the left. When a user changes "image quality" frequently, as shown in drawing 6 , a menu display is updated so that the item of "image quality" may come first (leftmost location), at the time of the shift to a menu screen, the frame-like selection mark (henceforth cursor) 86 is located in the item of "image quality", and this serves as a start location of cursor 86.

[0039] Moreover, you may make it the order of a display of a menu item 82 bring the start location of cursor 86 to an item with the highest frequency by the initial screen at the time of menu screen shift, without changing, as shown in drawing 7 .

[0040] Next, actuation of the constituted digital camera 10 is explained like the above.

[0041] Drawing 8 is a flow chart about the display control of a menu item. About a menu display, there are the mode which fixes the order of a display of an item with an initial state (at the time of product shipment), the mode which makes an automatic change at the order of frequency, and the mode in which a user specifies the order of a display as arbitration. A user can choose a desired display mode from predetermined screens, such as "a setup."

[0042] If control of a menu display starts as shown in drawing 8 , CPU64 will judge whether the mode

which fixes the order of a display of a menu item is chosen (step S110). When the mode which fixes the order of a display is chosen (at the time of a YES judging), it judges whether it progresses to step S112, then the start location of cursor 86 is fixed. When a setup which fixes the cursor location of the beginning at the time of menu screen shift is made (at the time of a YES judging), a menu display is fixed with the initial state at the time of product shipment (step S114). In this case, it becomes the menu display always same at the time of menu screen shift, and a start location. In addition, the information on an initial state shall be memorized by the nonvolatile memory (for example, EEPROM) which is not illustrated in a camera.

[0043] When a setup which changes a start location in step S112 is made (at the time of NO judging), an item with the highest operating frequency is made into a start location among a menu item, and the initial valve position of the cursor 86 at the time of menu screen shift is changed (step S120). Count of frequency calculates the count by which each item of a menu was changed among the images of the N past (for example, five sheets). In addition, when a user changes two or more items at once, frequency counts about each item.

[0044] When the mode in which the order of a display is changed in step S110 is chosen (at the time of NO judging), it progresses to step S116. At step S116, it judges whether the display by the order of frequency is performed. When the automatic maintenance mode of the menu display by the order of frequency is chosen (at the time of a YES judging), processing which displays the order of a display of a menu item 82 in order of frequency is performed (step S118), and the start location of cursor 86 is brought to the menu item 82 of the head in the initial screen at the time of menu screen shift (step S120).

[0045] When not performing the display by the order of frequency in step S116 (at the time of NO judging), a user specifies the order of a display of a menu item 82 as arbitration, and a menu display is performed according to the assignment (step S122). This manipulation routine is ended through step S122, step S120, or step S114.

[0046] Drawing 9 is a flow chart about control of the updating timing of a menu display. There are the mode which restricts to a power up and updates a menu display as timing which updates a menu display according to the operating frequency of a menu item 82, and the mode which updates a menu display serially whenever it performs photography. A user can choose the desired update mode from predetermined screens, such as "a setup."

[0047] A start of control of updating timing judges first whether the mode performed when a power source is newly turned on is chosen as updating timing of a menu display (step S210). When a YES judging is obtained in step S210, it progresses to step S212. At step S212, processing which calculates the count into which each item of a menu was changed among the images of past N (for example, 5) ** at the time of a power source ON is performed, and the menu display of the order of frequency is updated based on the count result.

[0048] On the other hand, when [that] NO judging is obtained in step S210, it progresses to step S214. At step S214, whenever it photos an image, the same frequency computation as the above is performed, and based on the count result, the menu display of the order of frequency is updated serially. The menu display by which the menu item 82 was arranged in order of frequency is performed through step S214 or step S212 (step S216), and the highest item of frequency serves as a start location (step S218). In this way, this manipulation routine is ended.

[0049] After photography activation, the operating frequency of a menu item 82 is recalculated each time, whenever it performs photography of not only the method that updates a menu display but the count of predetermined, operating frequency may be calculated and a menu display may be updated.

[0050] Drawing 10 is the flow chart of a menu display setup of the arbitration by the user. In a menu, they are M1, M2, --Mn. There shall be n menu items. First, the n menu items {M1, M2, --Mn} which serve as a selection candidate are indicated by reference on the screen of a liquid crystal display monitor 28 (step S310). At this time, it is desirable to add the function which displays the frequency ranking and each count of modification of the changed menu item 82 collectively. A user can refer to frequency ranking or the information on the count of modification, and can examine the display order of a menu

item 82.

[0051] Subsequently, CPU64 sets counted value k of a counter as initial value "k= 1" (step S312), and receives selection of the item which you want to display on the k-th in a menu screen (step S314). It judges whether the item which a user wants to display on the k-th was specified (step S316), and if it is NO judging, it will wait for the assignment input of return and a user to step S314.

[0052] If the item which a user wants to display on the k-th is specified, it will become a YES judging at step S316, and will progress to step S318. At step S318, processing which registers into the display ranking of No. k the item which the user specified is performed. In this way, registration of the k-th display item eliminates the registered item concerned from the screen of a reference display (step 320). Thereby, a reference indication of the item of a n-k individual is given as a selection candidate.

[0053] Subsequently, counted value k of a counter counts up +one (step S322), and the judgment of whether counted value k exceeded the total n of a menu item is performed (step S324). When NO judging is obtained at step S324, sequential registration is similarly performed to step S314 about return and subsequent display ranking.

[0054] After finishing registration of display ranking about all menu items, it becomes the YES judging in step S324, and progresses to step S326. At step S326, a menu display is changed according to the registered order of a display. In this way, a menu item is displayed in order of the display specified by a user.

[0055] Next, the modification of this operation gestalt is explained.

[0056] Corresponding to the miniaturization of a camera, assigning two or more functions to one manual operation button is performed. Usually, by further multi-functionalization of a manual operation button, although the alphabetic character and notation which show the function of the manual operation button concerned are attached by silk printing etc. near the manual operation button, since the function of a carbon button may change variously, marking by printing becomes difficult.

[0057] Then, as shown in drawing 11 , the liquid crystal display section 92 is formed near the manual operation button 90, and the role of a manual operation button 90 is displayed on this liquid crystal display section 92. If the liquid crystal display section 92 becomes non-display and a power source is turned on when a camera power source is OFF, the information which shows the function of a manual operation button 90 will be displayed on the liquid crystal display section 92.

[0058] A user can set up suitably the function of a manual operation button 90, and the contents of a display of the liquid crystal display section 92. It is also easy to return to the past contents of a setting by memorizing the hysteresis of setting modification to the nonvolatile memory (for example, EEPROM) which is not illustrated in a camera.

[0059] Moreover, the mode which is made to link the manual operation button 90 shown in drawing 11 and the liquid crystal display section 92 with a photography menu, and is assigned to the jump carbon button (one push command carbon button) to a menu item with high operating frequency is also desirable. In this case, while combining with an update process of the menu display by the order of frequency explained by drawing 8 thru/or drawing 9 and assigning a manual operation button 90 to a jump carbon button to a menu item with the highest frequency, the alphabetic character or notation which shows that menu item is displayed on the liquid crystal display section 92.

[0060] With the gestalt of the above-mentioned implementation, although the digital camera was explained to the example, the applicability of this invention is not limited to this, but can be widely applied to electronic cameras which change a photographic subject image into an electrical signal, and picturize it using an image sensor, such as a video camera.

[0061]

[Effect of the Invention] Since the user could set the array sequence of the menu item which is displayed on a menu screen according to the electronic camera concerning this invention as arbitration as explained above, and automatic modification was enabled at the order of frequency, the operating environment which each user tends to use is realizable. Moreover, even when the order of a display remains as it is, its operability improves by the configuration which sets the start location of cursor automatically in an item with the highest frequency.

Abstract :

PURPOSE: A device for controlling menu outputs is provided to improve an output state of a display device and reduce data processing time for outputting to the display device since only menus used by a user can be normally displayed.

CONSTITUTION: A selection part(1) has a key(15) for inputting a users identification password, and keys(11-14) for select a certain menu. An operation control part(2) judges the users identification password inputted from the selection part(1). In case that the number of the use times of the user is over the number of times set as a reference, the operation part(2) changes an initial setting menu to menus set by the user to be re-set. A memory(3) stores the number of use times of the user judged by the operation control part(2) and data corresponding to the number of times of menu selections. A display part(4) selectively displays the initial menu and re-set menus.

Legal Status :

1. Application for a patent (19980924)